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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MCNELIS, KATHLEEN A	
ART UNIT	**PAPER NUMBER**
1742	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/743,432	YAMAKI ET AL.	
	Examiner	Art Unit	
	Kathleen A. McNelis	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *29 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. 10/743,432
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Status

Claims 1-15 remain for examination wherein claims 1-3 and 5-15 are amended.

Status of Previous Rejections

Claim Rejections - 35 USC § 112

The previous rejections of claims 1-15 under 35 USC § 112, second paragraph are withdrawn in view of applicants' amendments.

Claim Rejections - 35 USC § 103

The previous rejections of claims 1-15 under 35 USC § 103 as being unpatentable over Aokie et al. (U.S. Pat. No. 6,425,934) in view of Katsumata et al (U.S. Pat. No. 6,855,187) and Allerton III et al (U.S. Pat. No. 5,294,244) are withdrawn in view of applicants' amendment of the claims.

The previous rejections of claims 1-15 under 35 USC § 103 as being unpatentable over EP 1 020 683 (EP '683) in view of EP 0 818 547 (EP '547) are withdrawn in view of applicants' amendment of the claims.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10-11 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 10 and 11 are indefinite because "a time required to compete thermal treatment" has not been disclosed. The discussion on page 12 of the specification related to conducting a "heating test where an inflator is exposed to a temperature atmosphere to be treated" does not clarify the claim language. It is not evident from this explanation of testing what constitutes completion of the thermal treatment or how to determine when that completion has been reached.

Claim 15 is indefinite because it is not clear what "those holding water" refers to, where the water would come from during the previous heat treating step, or how a cutting process would prevent water from entering the furnace and exploding during melting. The passage on page 22 of the specification "a structure in which water is easily entered or stayed inside the inflator" does not clarify this point.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 6, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukabori et al. (U.S. Pat. No. 5,849,062) in view of Morey (U.S. Pat. No. 4,362,276).

Fukabori et al. discloses a method for removal and treatment of gas generating air bag inflators from vehicles (abstract). The gas generators have metallic housing and an ignition means for igniting the gas-generating material therein (col. 1, lines 19-26). Fukabori et al. teaches that the gas generators should be classified according to the primary metal of the housing (i.e. stainless steel or aluminum; col. 2,lines 55-62). The gas is ignitied by heating at a temperature between 150 and 450 °C to ignite and completely burn the gas generating agent (col. 4, lines 7-19). Gas generators are charged separately according to type of housing (col. 2, lines 58-62).

While Fukabori et al. teaches that the metallic materials are recovered from the gas generators (col. 2, lines 30-34), it is silent with regard to the wire harness, and therefore does not teach cutting and removing said wiring harness (see instant claim 1).

Morey (U.S. Pat No. 4,362,279) discloses a method for recovering and recycling metal and plastic from insulated wire. Wire is chopped or cut to length prior to separation from the insulation (col. 2 lines 18-34). Morey teaches that there is an economic benefit to recover both metals and plastic from wire (col. 2, lines 18-24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to remove the wiring harness from the gas generating agent of Fukabori et al. and process the wiring harness according to the method of Morey, to benefit from the economic value of the recovered metal and plastic as taught by Morey.

With respect to claim 2, Fukabori et al. in view of Morey teaches that light materials including plastics are separated by air jet during crushing (Fukabori et al., col.

5, lines 9-50). In addition, plastics associated with wiring harnesses are separated during recycling (Morey, col. 2, lines 18-24).

With respect to claim 6, the method of Fukabori et al. in view of Morey is used for aluminum and stainless steel housings (Fukabori et al. col. 2, lines 55-57).

With respect to claims 10 and 11, the method of Fukabori et al. in view of Morey includes treating the inflators at high temperature between 150 and 450 °C to ignite and completely burn the gas generating agent (Fukabori et al. col. 4, lines 7-19) without melting the metal shells.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukabori et al. (U.S. Pat. No. 5,849,062) in view of Duckworth (August, 2002).

Fukabori et al. discloses a high temperature treating method for air-bag inflators as described above.

Fukabori et al. is silent with respect to physical facilities and therefore does not disclose that the operation prior to thermal treatment is conducted in a lightening protected environment as in instant claim 9.

Duckworth teaches that methods for protection of personnel and equipment are reliable and inexpensive compared to the cost of equipment repair, and that nearly all lightening damage to equipment can be avoided (p. 124). It would have been obvious to one of ordinary skill in the art at the time the invention was made to install lightening protection as taught by Duckworth in the process of Fukabori et al. to prevent costly damage to equipment as taught by Duckworth.

Claims 3-5, and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukabori et al. (U.S. Pat. No. 5,849,062) in view of Morey (U.S. Pat. No. 4,362,276) and in further view of EP 0 818 547 A1 (EP '547).

Fukabori et al. in view of Morey discloses a method for thermally actuating air bag inflators at a temperature below the melting of the metal housings as described above. Charges are segregated based on housing primary metal (aluminum or stainless steel).

Fukabori et al. in view of Morey is silent with respect to segregating inflators by shape (as in instant claims 3, 4, or 7-8) or type (as in instant claim 5).

EP '547 discloses a method for recycling the air bag inflators to recover aluminum at an alloy composition and weigh percent comparable to that used to manufacture the air bag inflators (col. 5, lines 17-43). This is accomplished by first segregating the inflators by external segregation (col. 5 lines 20-25). External configuration includes the shape and type of inflator as in instant claims 3-5 and 7-8. Further, inflators are screened to remove pyrotechnic and hybrid systems for separate handling (col. 2, lines 50-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to segregate the housings for processing in the method of Fukabori et al. in view of Morey based on shape and type of inflator to enable recycling an aluminum alloy of the same composition as that used to manufacture the air bag inflators as taught by EP '547.

Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukabori et al. (U.S. Pat. No. 5,849,062) in view of Morey (U.S. Pat. No. 4,362,276) and

in further view of the ASM Handbook, formerly 9th edition, Metals Handbook, Volume 15, Casting ("Metals Handbook").

Fukabori et al. in view of Morey discloses a process for segregation of air-bag inflators by materials of construction, actuation of the devices in a heating furnace, and recovery of the metals by melting as described above.

While Fukabori et al. in view of Morey discloses that the melting is performed in a tower melting furnace, open type crucible or arc furnace (Fukabori et al., col. 8, lines 18-20), it is silent regarding details of furnace design and operation, and therefore does not teach cooling the exhaust gases or cooling tower as in instant claims 12 and 13.

The Metals Handbook teaches that it is common practice to provide a water-cooling system for electric arc (pp. 359-360, fig 8) and cupola (cylindrical shaft) furnaces (p. 386). In addition, emissions control is required for off-gases from both type furnaces (pp. 360-361 and pp. 386-387). The water-cooling provides benefits in reducing the cost of air pollution control equipment and consumable refractory (p. 386). It would have been obvious to one of ordinary skill in the art at the time the invention was made to cool the flue gases and furnace as taught by the Metals Handbook from the melting furnace of Fukabori et al. in view of Morey to reduce the cost of air pollution control equipment and consumable refractory as taught by the Metals Handbook.

With respect to claim 12, the method disclosed by Fukabori et al. in view of Morey in further view of the Metals Handbook includes charging the inflators by conveyor into a heating furnace (Fukabori et al., col. 4 lines 6-27), therefore a charging

apparatus (conveyor) and thermal treatment tower (furnace) are present in the system. The exhaust gases are cooled as described above.

With respect to claim 13, metals are recovered as described above and melted (Fukabori et al., col. 5 line 64- col. 6, line 7).

Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukabori et al. (U.S. Pat. No. 5,849,062) in view of Morey (U.S. Pat. No. 4,362,276) in further view of the ASM Handbook, formerly 9th edition, Metals Handbook, Volume 15, Casting ("Metals Handbook") and in further view of EP 0 818 547 A1 (EP '547).

Inflators are recovered as described above.

The method of Fukabori et al. in view of Morey in further view of the Metals Handbook discloses a method for crushing and shredding automobiles where the air-bag actuators are located (Fukabori et al., col. 5, lines 34-50), but is silent respecting cutting apart inflators prior to melting as in instant claims 14-15.

EP '547 discloses a method for treating air-bag inflators as described regarding claims 3-5 and 7-8 above to recover an aluminum alloy of a comparable compostion to that used in the manufacture of air bag inflators (col. 5, lines 17-43). In this method, the inflators are subjected to shearing or shredding operations to break them apart prior to separation of like materials for treatment (col. 2l lines 50-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to shear or shred the housings for processing as taught by EP '547 in the method of Fukabori et al. in view of Morey and in further view of the Metals Handbook, to enable recycling an

aluminum alloy of the same composition as that used to manufacture the air bag inflators as taught by EP '547.

Response to Arguments

The previous rejections based on 35 USC § 112 have been withdrawn based on applicants' amendment to the claims.

Applicant's arguments with respect to the 35 USC § 103 rejections of claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571-272-3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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